

## Description of New Chalcid-Flies From Panama and Hawaii (Hymenoptera).

BY P. H. TIMBERLAKE

Citrus Experiment Station, University of California,  
Riverside, California.

The types of the two new species of Encyrtidae from Panama, described below, are in the collection of the Hawaiian Sugar Planters' Station, and the types of the Hawaiian species are in the collection of the Hawaiian Entomological Society.

### ENCYRTIDAE.

#### *Zaplatycerus* new genus.

This genus is closely allied to *Chrysoplatycerus* Ashmead, and differs in having the scutellum convex, distinctly punctured and without an apical fascicle of hair, and in having the stigmal vein distinctly shorter than the postmarginal and hardly curved.

Genotype: *Zaplatycerus fullawayi* n. sp.

Female. Head hemispherical, the occiput very slightly concave from side to side, the face with a deep semicircular scrobal impression as in *Chrysoplatycerus*; as seen from above, the head is rather broadly reniform, strongly rounded on the side, transverse in front between the eyes and slightly emarginately arcuate on the occipital border, which is almost acutely angled; as seen from the side, it is almost perfectly hemispherical in outline, but with a slight protuberance just below the eye, formed by the carina that bounds the scrobal impression; as seen from in front, the head is about as long as wide, the sides well rounded, but somewhat converging below toward the mouth, the oral margin rather strongly rounded, and the dorsal margin transverse. Eyes large, broadly oval, hardly perceptibly wider in the ventral half, almost touching the occipital margin posteriorly and with the inner orbits slightly diverging anteriorly; fronto-vertex nearly twice as long as wide, its width at the ocelli distinctly less than one-third the width of head, but more than one-fourth; ocelli rather large, arranged in an equilateral triangle, the posterior pair almost touching the eyes and a little more than their own diameter from the occipital margin. Cheeks as long as the width of the eyes, the genal suture delicate but distinct; face strongly convex between and below the antennae, the oral margin strongly arched; the deep semicircular scrobal impression bounded above by a sharp carina which ends abruptly in a slight prominence just below the anterior ends of the eyes and above the antennal

sockets (in *Chrysoplatycerus splendens* this carina extends opposite the lower margin of the antennal sockets); antennal sockets situated about midway between the ocular line and oral margin and rather far apart, the distance between them being about three times as great as their own length.

Antennae strongly laminately expanded; the scape extending far beyond the scrobal impression, its dorsal surface clavately expanding from base to apex, flat and at right angles with the inner surface, the latter enormously expanded, so that the greatest width near apex is somewhat more than one-half the length, but narrowing toward base; ventral margin of expansion nearly straight to near the apex, then strongly curved to the articulation with pedicel; outer surface of the scape also descending like a narrow ledge from the dorsal margin and forming a concavity for the reception of the pedicel; pedicel longer than any of the following funicle joints, flattened on the dorsal margin like the scape and produced ventrad in a long, curved process, forming a concave apical surface for the reception of the funicle; flagellum in form of an oval, laminate mass about thrice as long as wide, the vestiture consisting of very fine short hairs rather dense but inconspicuous, funicle six-jointed, each joint strongly transverse, the dorsal arm of each, except of the first joint, longer than the ventral arm, the dorsal margin of the joints increasingly longer distad, and the ventral margin of each joint ending in an acute recurved point; club solid, subtriangular, but rounded at apex, the base and ventral sides subequal and about one-fourth longer than the dorsal side. Mandibles narrow in frontal view with two acute teeth at apex, of which the inner one is considerably the larger; on inner margin at base of the second tooth is a very slight angular protuberance, thus faintly indicating a third tooth. Palpi short, rather stout; maxillary pair four-jointed, first two joints somewhat longer than wide, subequal, both increasing in width toward apex, third joint shorter, no longer than wide, the fourth joint about as long as first two joints combined, oval, but rather acutely pointed at apex; labial pair very short and three-jointed, basal joint about as long as wide, the second nearly twice as wide as long, and the third about twice as long as wide and rounded at apex.

Thorax very robust, about one-third longer than wide and as thick dorso-ventrally as wide; pronotum very short, strongly arcuate, almost wholly concealed in dorsal view of insect; mesonotum strongly convex both anteroposteriorly and from side to side; mesoseutum not quite twice as wide as long, its posterior margin nearly straight; axillae not elevated above scutellum, rather large, about one-half as long as wide, and not quite meeting medially; scutellum very convex and almost tectiform toward apex, with a slight median carina from apex nearly to the middle and with a fine, grooved, median line at base, the sides strongly declivous in a curve, the apex acute and reaching to the base of the propodeum; metanotum reduced to two obliquely placed side pieces somewhat triangular in shape; propodeum with a dorsal and an obliquely declivous posterior surface, the former part divided medially by the apex of scutellum, each lateral por-

tion very acute medially and greatly lengthening toward sides, the anterior margin curving forward considerably in front of the apex of scutellum; propodeal spiracles small, nearly circular, placed in the angle between anterior and lateral margin and very close to both margins. Prepectal plates thin, rather large and somewhat overlapping the mesopleura; the latter obliquely truncate on posterior margin; metapleura extraordinarily large, subquadrangular, but only one-half as long ventrally as on dorsal margin.

Abdomen much as in *Chrysoplastycerus*, but shorter and wider across the base, being as wide as the thorax and about two-thirds as long, hardly longer than wide, the dorsum deeply sunken in behind the first tergite, the venter compressed and strongly tectiform, the ovipositor enclosed by the ventrites and barely protruded at apex.

Legs normal, slightly longer than in *Chrysoplastycerus*, the middle tarsi only slightly tapering toward apex and stouter than the cylindrical hind tarsi; spur of middle tibiae nearly as long as the basal joint of the tarsus. Wings normal in size and shape; costal cell wide, mostly bare, but finely setose along the external margin; marginal fringe very short and dense; discal pubescence fine and dense, but coarser in basal area; speculum very wide, extending obliquely from apex of submarginal vein nearly to opposite margin, but obscured by about five rows of setae on the reverse side of disk; base of wing with a large triangular bare area, enclosed by a row of setae next to the vein and by several rows next to the speculum and partly enclosed on outer side by two rows of finer setae placed considerably in from the margin; submarginal vein not quite reaching to the middle of the costal margin and not thickened distad; marginal vein punctiform; stigmal vein moderately long, nearly straight, but with a beak-like expansion at apex directed toward the costal margin; postmarginal vein slender and distinctly longer than the stigmal. Hind wings rather wide, the disk almost completely pubescent, the marginal fringe somewhat longer than in the fore wing, the costal cell not very wide but reaching distinctly to the hooklets.

Frontovertex and mesonotum with a very fine delicate reticulation, the frontovertex also with sparse fine punctures which become distinctly longer in the ocellar region; mesonotum with numerous fine punctures which are about equally close on scutum, axillae and most of the scutellum, but become much sparser at apex of scutellum; scrobal impression of face smooth and polished, the prominence between the antennae subrugulose reticulate, the lateral margins of face more delicately reticulate; cheeks moderately finely reticulate and rugulose behind the genal suture; propleura, prepectal plates, tegulae, and metapleura about as finely reticulate as the cheeks, but hardly rugulose; mesopleura smooth except on ventral margin posteriorly, where they are delicately lineolate and partly reticulate; abdomen smoother and more shiny than notum of the thorax, but delicately reticulate on sides of first tergite and distinctly reticulate on ventral surface of the same segment. Pubescence very fine, dark-colored and incon-

spicuous, sparse on the head, rather dense and retrorsely appressed on the mesonotum, the apex of scutellum without any longer bristle-like setae; abdomen nearly bare; the eyes bare. Coloration submetallic fuscous.

Male. Similar to the male of *Chrysoplatycerus*,\* but it differs, as follows: Head a little thicker fronto-occipitally; frontovertex a little longer than wide, the posterior ocelli about their own diameter from the margin of the eyes and occiput; eyes somewhat larger, more triangular in outline, with distinctly longer, denser pubescence; face no wider than long, the scrobal impression subcircular, not extending outward much beyond the lines indicated by the inner orbits of eyes, divided in the inferior half by the triangular extension of the facial prominence, and in the superior half by a carina-like continuation of the prominence; the antennal sockets about equidistant from the nearest point of the eye and from the clypeal margin.

Antennae somewhat shorter; scape reaching slightly beyond the scrobal impression, compressed and somewhat expanded beneath; pedicel no longer than thick; flagellum cylindrical, distinctly thicker than the pedicel, densely clothed with short antrorse setae; funicle six-jointed, each joint discoid, about twice as broad as long; club nearly as long as the last three funicle joints combined, gradually tapering to the somewhat rounded apex.

Thorax more robust, thicker dorsoventrally and convex anteroposteriorly, as well as from side to side; the axillae longer and much less acute medially, the scutellum much less rounded at apex; thorax very much also as in the female, except that the scutellum is more depressed on disk, much more abruptly declivous at sides and apex, and without a median carina toward the apex. Abdomen depressed, somewhat concave above, slightly broader than thorax, about two-thirds as long and subtriangular in outline, with the basal angles rounded and the apex truncate.

Legs not differing markedly from the female or the male of *Chrysoplatycerus*. Wings nearly as in the male of *Chrysoplatycerus*, but the marginal vein punctiform; similar to wing of female, but hyaline, more triangular in shape, the stigmal vein somewhat shorter, straight and not enlarged at apex, and the bare area at base of disk smaller.

Cheeks exterior to the genal suture, frontovertex and notum of thorax rugulose reticulate, the sculpture of other parts of body about as in the female, differing from male of *Chrysoplatycerus*, especially in having the face much less smooth and polished, the notum more rugulose, the pleura in part reticulate. Pubescence much denser than in the male *Chrysoplatycerus*, but not conspicuous on account of its dark color. Coloration slightly metallic black, and with no parts of the body brilliantly metallic.

*Zaplatycerus fullawayi* n. sp. Figure 1.

Female. Head metallic fuscous, with a moderately strong greenish luster changing to purplish-blue on the facial prominence; antennae black with

\* Cf. Proc. U. S. Nat. Mus., Vol. 61, Art. 2, p. 2, 1922.

a moderately strong greenish luster, most brilliant on the scape; thorax and abdomen brownish fuscous, very nearly metallic, and with a slight greenish luster, most evident on the sides of the scutellum, although the sides of the basal segment of abdomen (meaning the more dorsal part of that portion of the tergite that is reflexed on to the venter) have rather a brilliant golden and reddish-purple luster; legs brown, but with the tarsi, apex of middle tibiae and tibial spur yellowish; the apex of front tibiae, apical half of middle and hind femora, especially toward ventral margin, also somewhat yellowish; wings subfuliginous, the infuscation gradually fading toward apex of disk and relieved by a small hyaline spot beneath the juncture of submarginal and stigmal veins and by a curved hyaline streak, not quite parallel with the posterior margin, extending from the speculum to about opposite the middle of the stigmal vein and placed somewhat more than one-third of the width of disk in from the posterior margin; hind wings faintly fuliginous.

Length of body, 1.50; length of head, 0.567; width of head, 0.643; thickness of head fronto-occipitally, 0.321; width of vertex at anterior ocellus, 0.183; length of antenna, 1.294; width of scape, 0.305; width of mesoscutum, 0.682; length of fore wing, 1.514; width of fore wing, 0.623 mm.

Male. Frontoververtex with numerous short, erect, well-scattered setae; eyes rather densely pubescent, the setae erect and nearly as long as those on the frontoververtex; short retrorse setae on mesonotum similar to those of female, but relatively denser, those on the scutellum becoming gradually a little longer toward apex and erect at the extreme apex.

General color nearly black, with the frontoververtex and mesonotum rather dull on account of the rugulose sculpture; the face, cheeks, and pleura shining, but not highly polished and with a slight greenish luster on the face and metapleura; abdomen somewhat shiny black; mandibles reddish; antennae dull blackish; legs blackish, somewhat shiny, with all the tarsi, apex of middle tibiae and spur brownish-yellow; wings hyaline, the veins and pubescence of the disk dusky.

Length of body, 1.36; length of head, 0.505; width of head, 0.568; thickness of head fronto-occipitally, 0.272; width of frontoververtex, 0.215; length of antenna, 0.778; width of mesoscutum, 0.606; length of fore wing, 1.241; width of fore wing, 0.584 mm.

Described from three females (holotype and paratypes), Canal Zone, Panama, April, 1924, and one male (allotype), New Providence, Panama, May 11, 1924, all reared by Mr. Fullaway from *Pseudococcus brevipes* (Cockerell) (*bromeliae* Authors). One of the females is in poor condition, as it is a mere shell with mouth parts and abdomen lost.

Type No. 1247, Hawaiian Sugar Planters' Experiment Station.

**Chrysophilus** new genus.

Closely allied to *Isodromus* Howard, but differing in having the head longer than wide and strongly, hemispherically convex, the face without scrobes, the hind tibiae laminately expanded, and the abdomen small and very much compressed.

Genotype: *Chrysophilus compressiventris* n. sp.

Female. General form slender, much less robust than in *Isodromus*; head much longer than wide, a little narrower than thorax, about two-thirds as thick fronto-occipitally as wide, hemispherical in shape, with curvature, as seen from side, nearly uniform from occipital margin to the mouth; as seen from in front, well rounded above, the cheeks somewhat converging in a straight line to the broad, truncate oral margin; occipital surface of head well exposed above, almost flat, the neck inserted near the middle, the marginal angle at vertex about rectangular; eyes moderate in size, irregularly oval, broader at lower end and well separated at dorsal end from the occipital margin; vertex somewhat less than one-third as wide as whole head, the space between eyes seen in dorsal view of head about twice as long as wide, the inner orbits of eyes moderately diverging posteriorly; ocelli in an equilateral triangle, the posterior pair contiguous to the eyes and remote from the occipital margin; cheeks moderately long and about equal to width of eyes; face convex, without scrobes, the antennal sockets large, subtriangular, their inner margin straight and parallel, their anterior margin almost touching the oral margin, and the distance between the sockets about equal to their length. Antennae as in *Isodromus*, but a little longer and slenderer. Mandibles tridentate at apex, the two outer teeth acute, the inner tooth truncate, but not very wide, and thus nearly as in *Isodromus iceryae* Howard, which has the inner tooth more broadly truncate. Palpi short; maxillary pair three-jointed, the basal joint a little more than twice as long as thick, the middle joint the widest, shortest and about one-half longer than wide, the third joint about as long as the first, but slender, cylindrical, and at its apex provided with a minute conical nipple, which may represent a fourth joint; labial palpi three-jointed, the basal joint nearly thrice as long as wide, the middle joint very small and transverse, the third not quite as thick as the basal joint and somewhat less than one-half as long.

Thorax twice as long as wide, attaining its greatest width across the propodeum; pronotum large, conical, well exposed, its posterior margin arcuate; mesoscutum moderately convex from side to side, hardly more than one-third broader than long; axillae large, depressed, broadly meeting medially as in *Isodromus*; scutellum somewhat shorter than the mesoscutum, acute at apex, the disk depressed to a little beyond the middle, then strongly roundly declivous to the apex and toward the sides, the depressed part of scutellum, together with the axillae, forming a nearly equilateral triangle; propodeum large, rather strongly declivous posteriorly, by

no means short medially, yet fully twice as long at the sides as at the middle; metapleura very small, the metepimeron visible as a narrow sclerite between metapleura and mesopleura.

Abdomen small, laminately compressed, very much narrower, therefore, than the thorax and about two-thirds as long; cercal plates not retracted toward the base, but situated close to the apex; apical ventrite keel-like, strongly produced beyond apex of tergum; ovipositor normally enclosed by the ventrites, but the naked spicula is exposed in one specimen.

Wings long and narrow or about three times as long as wide; discal setae dense, but the basal area largely bare, marginal fringe short but dense; speculum very narrow above, expanding into a large hairless area at middle of disk and connecting with basal hairless area at the posterior margin of wing; submarginal vein straight, not enlarged distad; marginal vein about twice as long as wide, the postmarginal somewhat shorter than the marginal; stigmal vein very slender, hardly expanded at apex, forming a very acute angle with the postmarginal and somewhat longer than marginal and postmarginal veins combined.

Middle and hind legs very long, the front and middle pair very slender and cylindrical, the hind pair compressed, but with the femora, however, not much wider than in related genera, the tibiae, on the other hand, laminately expanded on outer (or dorsal) margin; hind tarsi about two-thirds as long as middle tarsi and slightly tapering; middle tarsi very long, nearly as long as middle tibiae, distinctly tapering, yet not much thickened basad, the basal joint almost as long as the last four joints combined; spur of middle tibiae very long and slender, yet not quite as long as the first joint of the middle tarsus.

Head with fine, close, reticulate, nearly round punctures, and with a few very shallow pin-punctures on the frontovertex; mesonotum rather shiny and with a very minute, uniform scaly reticulation; propleura and prepectal plates like the notum, the mesopleura very finely longitudinally reticulate and largely lineolate in the middle; propodeum and abdomen smooth. Pubescence sparse throughout; dorsal surface of head and the eyes practically bare, the face and cheeks with a few fine, short, whitish setae; pronotum with much longer rather numerous setae, pale brownish in color arranged mostly in transverse rows over the whole surface; mesoscutum, axillae, and scutellum with similar, but sparse setae; lateral margin of propodeum and the metapleura bare, without the dense, silvery-white pubescence found in other genera of the *Homalotylus* group; metepimera and outer surface of hind coxae, however, with moderately dense, white, appressed pubescence; abdomen bare, except on the keel-like hypopygium. Coloration non-metalllic; the antennae unicolorous.

Male. Not known.

**Chrysophilus compressiventris** n. sp. Figures 2 and 3.

Female. Head brown, the antennae a little paler yellowish-brown; thorax in large part and abdomen, except the base, piceous and with the

hypopygium brownish; propleura, front and hind coxae and base of abdomen yellowish-white, the prepectal plates brownish; remainder of front legs, apical half of middle tibiae and middle tarsi yellowish-brown and about concolorous with antennae; middle coxae piceous, the middle femora and basal half of middle tibiae fuscous, the femora at apex and in a very narrow ring close to the base paler or yellowish-brown; hind trochanters brownish, the hind femora, tibiae and basal joint of tarsi piceous; remainder of hind tarsi pale brownish-yellow, but the last joint of both the middle and hind tarsi brownish above and piceous at apex; wings nearly hyaline, with a large oval fuscous spot suspended from the marginal and stigmal veins, extending two-thirds of distance to the posterior margin and separated by a slender longitudinal hyaline streak from a much smaller fuscous spot on the posterior margin directly opposite the marginal vein; extreme base of disk with a small fuscous streak next to the posterior margin; veins pale fuscous, the marginal and postmarginal veins darker; hind wings wholly hyaline, the discal setae on the basal half becoming nearly invisible when the wing is mounted in balsam, those on apical half remaining distinct.

Length of body to apex of hypopygium (2.03 to) 2.06; length of head, 0.550; width of head, 0.457; thickness of head, fronto-occipitally, 0.307; width of vertex at posterior ocelli, 0.168; length of antenna, 1.135; width of mesoseutum, 0.524; length of fore wing, 1.555; width of fore wing, 0.515 mm.

Described from two females (holotype and paratype), reared from a *Chrysopa* cocoon, Canal Zone, Panama, March, 1924 (Fullaway).

Type No. 1248, Hawaiian Sugar Planters' Experiment Station.

#### APHELINIDAE.

*Marietta graminicola* n. sp. Figures 4 and 5.

This species occurs in two forms, one with the wings fully developed and one with the wings reduced to small scales. The latter differs also in having tergum of abdomen much less concave or even convex, alternately banded with whitish and fuscous, and I considered at first that it was probably distinct from the macropterous form. As the two forms are found together in grass infested with *Trionymus insularis* Ehrhorn, on which they are secondary parasites, and agree in many other respects, I now believe that they are forms of one species. The species differs from most of its allies, in having the wings (of macropterous phase) narrower than usual, and the scape unusually short and broad. It agrees in this respect with *M. zebra* (Kour-



dumoff), from which it differs (in the macropterous phase) in the details of the wing pattern and in having no setigerous punctures on the frontovertex.

### *Macropterous Phase.*

Female. Head thin fronto-occipitally and held vertically; eyes rather large, and after the head has collapsed in dry specimens their anterior ends are drawn close together, causing the vertex to appear triangular; ocelli small, in a nearly equilateral triangle, the posterior pair placed slightly closer together than the distance from either to the anterior ocellus and close to the margin of the occiput and of the eyes; cheeks somewhat shorter than the width of the eyes; antennae inserted moderately far apart, close to the oral margin; scape short and broadly expanded beneath, widest considerably beyond the middle and excluding the radicle distinctly less than twice as long as wide; pedicel nearly thrice as long as wide and somewhat less than one-half as long as the scape proper; the two funicle joints small, transverse, ring-joint-like, and not as wide as the pedicel or the following joint, the first joint rather smaller than the second; basal joint of the club nearly as long as the pedicel, nearly twice as long as wide, and somewhat less than one-half as long as the following joint; apical joint of the club somewhat wider toward the base than the preceding joint and pointed at apex.

Thorax about one-half longer than wide and only slightly convex from side to side; pronotum slightly wider than the mesoscutum, with an abruptly declivous anterior face, the collar very short, transverse, lengthened at the sides, the posterior margin slightly arcuate between the lateral expansions and again at each side; mesonotum somewhat more than twice as wide as long; axillae as long as wide; scutellum much broader than long and broadly rounded at apex; metanotum arcuate, with the sides curved forward, the length at the middle nearly one-third the length of scutellum and its surface level with scutellum; propodeum about as long as the metanotum, the slightly raised triangular area at the middle equilateral; mesopleura hardly longer than wide, convex and strongly oblique above on the posterior margin. Abdomen almost as wide as thorax and about as long as the thorax and head combined, rapidly narrowing from a little behind the middle to the rather acute apex; tergum usually more or less concave; ovipositor shortly protruded at apex.

Legs normal for genus; middle tarsi shorter than the tibia, slightly tapering, the basal joint longest, nearly one-half larger than the second joint and slightly longer than the tibial spur. Wings three times as long as wide; marginal vein about one-third longer than the submarginal vein.

Head and dorsum of thorax dull and alutaceous, with microscopic reticulations; pleura, propodeum, except medially, and the abdomen smooth, the depression of the tergum rather polished. Head, including eyes, apparently wholly bare; mesonotum with long, sparse, retrorse, whitish setae, of

which there are usually two pairs on scutellum and one seta on each axilla; collar of pronotum and sides of abdomen with similar setae.

Head and thorax in dry specimens about warm buff to buff-yellow (Ridgway), but due to post-mortem changes sometimes appearing more or less deeply flesh-colored; mesonotum with a few scattered, minute, fuscous dots, generally but not always encircling the base of the setae, there being usually three pairs of these dots on the scutellum; underparts of the thorax paler or about creamy-white; cheeks with a delicate fuscous oblique line, not quite parallel with the posterior margin of the eye and just barely crossing the genal suture anteriorly; color of abdomen in general about like that of the thorax, the concave, smoother part of the tergum yellowish or often more or less fuscous; the lateral margin and reflexed ventral part of the tergites more or less whitish and marked with five narrow, transverse, wavy, fuscous bands, which at the middle of the reflexed part of tergites are more or less united by an irregular, longitudinal, fuscous streak or series of streaks; basad of the first transverse band there are also two fuscous dots on the lateral margin of the first tergite; ventrites, which are visible only on apical part of abdomen, yellow; ovipositor yellowish, changing to piceous at apex. Scape, pedicel, and basal joint of club creamy-white; the scape proper with a single, oblique, narrow fuscous band reaching from close to dorsal margin near base to the ventral margin at a point slightly beyond the widest part, but the band sometimes faint or absent; basal half of pedicel on dorsal side, the two funicle joints, base of first joint of club narrowly below, but including about half the length dorsally, and a little less than basal half of the apical joint of club, fuscous; remainder of apical joint of club yellowish. Legs concolorous with underparts of thorax and marked with narrow, fuscous, more or less oblique annuli, as follows: Front and middle femora and tibiae and hind tibiae each with three rings, one of the rings of the front tibiae at extreme apex, the same part of the middle and hind tibiae with a more or less distinct additional ring; hind femora with four oblique rings, of which the two basal rings are more or less irregular and frequently either branching or splitting up into several dots on the outer surface; knee-joint of hind legs also with a minute fuscous dot; tarsi and spur of middle tibiae pale, except that the last joint of tarsi is fuscous. Wings whitish, marked with a fuscous pattern as shown in figure; although there is considerable individual variation, the two more or less circular, often unequal-sized, clear areas beneath the stigmal vein, and the three more or less triangular, clear areas arranged around the apex of the disk, are characteristic; the stigmal vein and the end of the two rays on costal margin of disk beyond the venation are darker than other parts of the pattern.

Length of body to apex of ovipositor, (0.793 to) 1.25; length of head, 0.371; width of head, 0.396; length of antenna, 0.519; length of scape, including radicle, 0.209; width of scape, 0.111; width of mesoscutum, 0.366; length of fore wing, 1.019; width of fore wing, 0.364 mm.

Male. Very similar to the female in structure and coloration, except as follows: Club entire, wider than in female, or about as wide as the scape and widest near the middle; abdomen hardly longer than wide, broadly rounded at apex, a little wider and shorter than the thorax, depressed, hardly concave and wholly yellowish above; wings relatively smaller.

Length of body, (0.625 to) 0.822; length of head, 0.320; width of head, 0.320; length of antenna, 0.448; length of scape, including radicle, 0.165; width of scape, 0.092; width of mesoscutum, 0.285; length of fore wing, 0.822; width of fore wing, 0.269 mm.

#### *Brachypterous Phase.*

Female. Differs from the macropterous phase in having the thorax no longer than wide, but with the proportionate lengths of the different sclerites about the same; the propodeum without a median triangular raised area; abdomen with a distinct tendency not to become concave above after drying; wings very small and reaching about to the base of the abdomen, about two and one-half times longer than wide, hyaline and with a submarginal vein running nearly the whole length of the disk. Coloration similar, but the narrow fuscous lines on abdomen are continued across the tergum, which is otherwise largely greyish-white except around the margin; basal tergite with three fuscous dots in a line on each side near basal corners, and a fuscous cross-line at the apical third, produced medially as a longitudinal line to the base, and more or less strongly biarcuate on each side of the middle; four following tergites similar but the fuscous line is often not continued medially towards the base, and in some specimens about two dots on each side along basal margin of the segments are visible, but these are often concealed by the preceding segment; the sixth tergite with an inverted T-shaped fuscous mark, with the transverse arms longer than the median bar and curved forward a little at the ends, the base of the segment with two dots on each side; seventh tergite yellowish and with an oval depression on the lateral margin toward the base, just behind the cercus, and this depression is usually more or less dusky or fuscous; apical margin of the tergites behind the fuscous line more silvery-white than elsewhere; ventral surface of abdomen about as in the macropterous phase.

Length of body to apex of ovipositor, 0.582 to 0.939 mm.

Male. Similar to the brachypterous female, with the usual sexual differences; abdomen in some specimens convex above, with the segments contracted and each tergite nearly covering the fuscous transverse line of the following segment, so that the general effect is produced of a more intense silvery-white surface; in one specimen the segments are extended, and three pairs of fuscous dots are visible on each side of the basal part of the tergites, of which the middle dot on each side is often connected with the transverse line; the sixth tergite differs from the female, in having

a pair of fuscous dots on each side and in the middle a longitudinal fuscous line that has no distinct, transverse arms at apex of segment.

Length of body, 0.644 to 0.775 mm.

Described from fifty-one females and eighteen males (holotype female, allotype and paratypes), all macropterous and reared from *Trionymus insularis* Ehrhorn collected at Kahuku, Oahu, July 18, 1919 (Swezey); one brachypterous female (paratype) reared with the above; seven females and one male (paratypes) of macropterous phase, and five females and three males (paratypes), of the brachypterous phase, reared from *Antonina indica* Green at Honolulu, May to July, 1919 (Timberlake); four females (three of them brachypterous) and two males reared from grass at Kaimuki, Oahu, March 8, 1913 (Swezey); two females (paratypes) of brachypterous phase reared from *Trionymus insularis*, Kaimuki, Oahu, June 28 and 30, 1919 (Swezey); two females (paratypes), one brachypterous, reared from Bermuda grass, Honolulu, June 14 and 16, 1919 (Timberlake); and two females and two males (paratypes), all brachypterous, swept from Bermuda grass at Waikapu, Maui, March 23, 1924 (Swezey).

#### LELAPINÆ.

The Lelapinae form one of the few groups of the Chalcidoidea represented in the autochthonous fauna of Hawaii. The species are rather numerous, but not very commonly taken, and this is especially true of some of the larger species like those described below. I should include in this group also those species described by Ashmead in the genera *Toxexuma* and *Stictomischus*. The Hawaiian Lelapinae all differ from the neotropical *Lelaps*, in having the pubescence of the head soft, fine, and short instead of being very coarse and rigid, the antennae at most moderately long, with the first funicle joint not especially elongate, the wings much shorter and broader, and the abdomen usually much less conically produced at apex.

#### *Calolelaps* new genus.

*Calolelaps* differs from *Neolelaps* Ashmead, in having the antennae somewhat shorter, the stigmal vein considerably more knobbed at apex as compared with Ashmead's figure of *Neole-*

*laps*, the petiole of abdomen much longer, the second tergite of abdomen about one-third as long as the gaster, and in having the following tergites not greatly unequal.

Genotype: *Calolclaps basalis* n. sp.

Female. Head rather thin fronto-occipitally, wider than long and somewhat wider than the thorax; eyes rather small, in comparison with *Lelaps*, and broadly oval in shape; frontovertex very broad or nearly twice as wide as long; ocelli in an obtuse-angled triangle, the posterior pair about as distant from the eyes as their distance apart; cheeks about as long as two-thirds the width of the eyes; face with a shallow scrobal impression, which produces a slight emargination on the anterior margin of the frons in dorsal view of head; clypeus discrete and nearly twice as wide as long. Antennae inserted on the ocular line, thirteen-jointed; scape slender, cylindrical, moderately long, and reaching only a little beyond the scrobal impression; pedicel about equal to the first funicle joint; two moderately large ring-joints present; flagellum somewhat clavate, the funicle six-jointed, with the first joint about twice as long as thick (shorter in *cocru-leus*), the sixth joint about as long as wide; club with three closely fused joints which decrease in length from basal to apical joint and form an oval mass nearly as long as the last two funicle joints combined. Labrum deeply bisinuate at apex so that there are three equal lobes, the middle lobe provided with two setae, the lateral lobes each with one seta; mandibles quadridentate; maxillary palpi long, four-jointed, the first and third joints subequal and shortest or about twice as long as thick, the second and fourth joints subequal, about as long as the first and third joints combined, the fourth joint being slightly fusiform; labial palpi three-jointed, with the basal joint about thrice as long as thick, the middle joint very short and wider than long, and the apical joint slightly more than twice as long as thick.

Pronotum conically produced at apex and with a distinct collar at base which is considerably narrower than the mesoscutum; the latter with complete but extremely shallow parapsidal furrows which are not at all suture-like; lobes of mesoscutum slightly convex; scutellum somewhat shorter than the mesoscutum and provided with a distinct cross-ridge at about one-fourth of the length from the apex; propodeum produced into a long neck, nearly as long medially as the scutellum and provided with a lateral carina on each side, which is not very distinct and extends from just inside the spiracle to the side of the apex of neck; spiracles minute and oval.

Abdomen about as long as the head and thorax combined; petiole about twice as long as wide, the next segment about one-fourth to one-third as long as the gaster, the following tergites not greatly unequal in length; gaster narrowly oval in shape, rather depressed above, triquetrously compressed beneath toward the base, the apex acute, with the ovipositor sheaths slightly protruded.

Wings moderately long and narrow, but distinctly shorter and wider than in *Lelaps*; marginal vein a little longer than the submarginal; post-marginal vein reaching nearly to the apex of the disk and about two-thirds as long as the marginal; stigmal vein moderately long, expanded into a small knob at apex; discal pubescence of wing sparse, in comparison with *Lelaps*, and rather long, the speculum absent; marginal fringe short.

Legs rather long, but somewhat shorter than in *Lelaps*; hind coxae very stout, tapering toward apex and about twice as long as thick; femora somewhat more swollen than in *Lelaps*; spur of middle tibiae very slender and about two-thirds as long as the basal joint of middle tarsi; spurs of hind tibiae well developed, the outer one somewhat the shorter; tarsi slender, the basal joint of the middle pair about equal to the three following joints combined.

Notum of thorax densely punctato-reticulately shagreened, with the separating lines considerably raised and mostly transverse, except on the scutellum; head much smoother, with the face and frons finely reticulate; propodeum, pleura, and mesosternum with fine, thimble-like punctures; abdomen smooth and polished. Pubescence of head and thorax very fine and soft; propodeum with a patch of white, appressed hair on each anterior corner, just exterior to the spiracles.

Male. Similar to the female; antennae slightly shorter with the flagellum much thicker, cylindrical and not clavate, the funicle joints about as wide as long or with the distal joints slightly wider than long; petiole of abdomen longer and slenderer or about four times as long as wide; gaster obovate, widest near apex and tapering toward the base; basal tergite of gaster about one-half as long as the whole gaster, the following tergites nearly equal; whole abdomen, including petiole, about four-fifths as long as the thorax, a little narrower and depressed.

***Calolelaps basalis* n. sp. Figure 6.**

Female. Clypeal margin with a small median tooth and slightly emarginate on each side of the tooth. Antennae nearly as long as the thorax, the flagellum cylindrical and slightly clavate; first two funicle joints about twice as long as wide, the following joints gradually shortening, the sixth about as wide as long. Petiole distinctly narrowed at base, where it is inserted into a cavity at apex of the neck of propodeum; basal tergite of gaster covering about one-third of the surface of the gaster, the next two tergites about one-half as long as any of the four following tergites.

Face and frons finely reticulate and much smoother than the thorax, the vertex behind the ocelli and the upper part of occiput transversely and rugulose shagreened; propodeum with deep thimble-like punctures, the mesopleura and mesosternum with similar, shallow punctures, those on the mesopleura becoming much finer in the shallow, obliquely longitudinal femoral furrow; prepectal plates with deeper, coarser punctures that are

considerably like those of propodeum; coxae with fine, almost imperceptible reticulations; petiole of abdomen finely and shallowly punctured.

Pubescence of head and thorax not very dense or prominent; eyes bare; patch of pubescence on anterior corners of propodeum white, woolly, and nearly concealing the underlying surface; abdomen very sparsely pubescent, except on the apical tergite, which is rather densely covered with pale yellowish, appressed hair.

Head and thorax bronzy violet, the upper part of the occiput slightly greenish, the pronotum except collar and mesosternum distinctly metallic green; petiole nearly concolorous with thorax, but brownish-yellow on sides and greenish dorsally at apex; first three segments of gaster or somewhat more than one-half the surface testaceous, with a small greenish-black, nubilous spot on each side near base of first tergite; three following segments of gaster blackish, with a greenish and golden luster that is not especially brilliant; apical segment of gaster yellowish, ovipositor sheaths black, the spicula brown. Scape yellow; pedicel and flagellum fuscous, but with the funicle joints partly somewhat yellowish, especially beneath; legs, including coxae, yellowish and excepting hind coxae somewhat paler than base of the gaster; apex of the last joint of the tarsi blackish. Wings hyaline; submarginal vein yellowish, and the remainder of the veins fuscous.

Length of body to apex of ovipositor sheaths, 3.48; length of head, 0.733; width of head, 0.917; least width of frontovertex, 0.537; length of antenna, 1.34; width of mesoscutum, 0.773; length of fore wing, 2.92; width of fore wing, 1.09 mm.

Male. Sculpture nearly as in the female, but the puncturation of the mesopleura uniform in size, and the petiole smoothish at apex above. Pubescence similar, but the latero-basal corners of the propodeum are less densely covered with whitish hair.

Dorsal half of head, the thorax and petiole moderately bright metallic green with a golden luster, with the head somewhat darker; latero-basal corners of propodeum, just in front of the spiracles, rosy purple; lower half of head, scape, legs and a little more than the basal half of gaster brownish-yellow, the first tergite of gaster having a nubilous, bluish-green quadrate mark at base which is somewhat wider than long and about one-half as long as the following yellow area; apex of gaster dark metallic green with a golden and purple luster; pedicel and flagellum of antennae blackish.

Length of body, 2.46; length of head, 0.544; width of head, 0.688; width of frontovertex at narrowest point, 0.419; length of antenna, 1.03; width of mesoscutum, 0.561; length of fore wing, 2.03; width of fore wing, 0.803 mm.

Described from one female (holotype) collected from *Eragrostis grandis*, Mount Kaala, Oahu, at about 2000 feet eleva-

tion, May 18, 1920 (Timberlake), and one male (allotype) collected in Palolo, Oahu, 2000 feet, in 1903 (Dr. Perkins).

The male may possibly belong to another closely allied species, but it seems to be too close to the female in its characters to be separated at present.

**Calolelaps coeruleus** n. sp.

Female. Clypeal margin slightly emarginate on each side of an extremely short median tooth. Antennae nearly as long as in *basalis*, but stouter and somewhat more clavate; scape, pedicel, and ring-joints similar to *basalis*; the funicle joints all about equal in length, increasing somewhat in thickness distad, the first and fifth as long as thick, the second, third and fourth slightly longer than wide, the sixth slightly wider than long; club as long as the two preceding joints combined. Petiole shorter than in *basalis* or about one-half longer than its apical width; gaster shaped about as in *basalis*, but more convex above; first tergite of gaster covering somewhat less than one-third the surface and equal to the two following tergites; second to seventh tergites of gaster all about equal in length; ovipositor sheaths slightly protruded.

Sculpture very similar to that of *basalis*, but all the coxae are distinctly and finely reticulate, the hind pair being much more coarsely reticulate above than elsewhere, and the front pair transversely lineolate, especially toward the base. Pubescence also similar, except that the latero-basal corners of the propodeum are provided with only a few short, whitish hairs.

Head and thorax bright metallic blue-green, the neck of the pronotum strongly bluish, the head somewhat more greenish with golden and reddish reflections, the latero-basal corners of propodeum with a bright rosy luster; abdomen bright blue-green, with the base of the tergites more bluish; ovipositor sheaths blackish-brown. Scape brownish-yellow, but becoming fuscous at apex, pedicel and flagellum blackish. Front and hind coxae bright metallic green on dorsal side, but blue-green beneath; middle coxae blue-green, although somewhat brownish on inner surface; remaining parts of the legs mostly brownish-yellow, with the hind tibiae somewhat brownish on dorsal margin and fuscous at apex, except beneath, and the last four joints of all the tarsi brownish above. Fore wings missing in the type, the hind wings hyaline.

Length of body to apex of ovipositor sheaths, 4.00; length of head, 0.749; width of head, 0.971; least width of frontoververtex, 0.577; length of antenna, 1.28; width of mesoscutum, 0.881 mm.

Described from one female (holotype) found dead and in a somewhat mangled condition in a naeo tree (*Myoporum sandwicense* Gray) at Kealakekua, Kona, Hawaii, at about 3500 feet elevation on August 11, 1919 (Timberlake). If I remember



rightly this specimen had been caught in a spider's web. On account of the circumstances under which it was taken, both fore wings and one antenna are missing.

*Stictolelaps* new genus.

Closely allied to *Calolelaps* Timberlake and to *Neolclaps* Ashmead. In shape of the abdomen it is apparently much like the latter genus, but it differs in having the antennae shorter and more clavate and in having the stigmal vein very strongly knobbed at apex.

Genotype: *Stictolelaps flaviventris* n. sp.

Female. Similar to *Caloleps*, but with the following differences: Both mandibles tridentate; stigmal vein with a much larger, roundish knob at apex; petiole shorter or about as long as wide; gaster much narrower and longer than the thorax, strongly compressed, convex above and acuminate at apex; first tergite of gaster the largest and as long as the two following tergites combined, the apex of the third reaching just to the middle of the gaster; second to sixth tergites nearly equal in length, the seventh somewhat more than twice as long as the preceding tergite and very slender and spike-like; puncturation of notum more thimble-like, the face densely punctato-reticulate or almost with thimble-like punctures; propodeum with four foveae along the basal margin inside the lateral carinae.

Antennae inserted slightly above the ocular line and thirteen-jointed, there being two ring joints and six funicle joints; first two funicle joints a little longer than thick, the following joints about as wide as long; club about as long as the two preceding joints combined, ovate in shape after collapsing, somewhat wider than the funicle and with the first joint the longest and the apical joint the shortest. Palpi essentially as in *Calolelaps*, but having the apical joint of the maxillary pair about one-half longer than the second joint. Labrum trilobed at apex, the lateral lobes bare, the middle lobe provided with four setae, of which two are placed on the truncate apex and one on each side near the base.

Male. Similar to the female, except that the petiole is about four times as long as wide and the gaster strongly depressed, small, and narrowly oval. Antennae nearly as in the female, being short and slightly clavate, with the funicle joints as long as thick or the apical joints a little wider than long.

Two species known only in the male sex are included, however, which have the antennae considerably longer or with the funicle joints all longer than thick. These two species are *Stictomischus haleakalae* Ashmead and *Stictolelaps stigmatus* n. sp. The latter species also differs in having the mandibles quadri-

dentate. The discovery of the female of these species may necessitate their removal from *Stictolelaps*.

***Stictolelaps flaviventris* n. sp. Figure 7.**

Female. Head and thorax with close, almost thimble-like punctures, changing to transverse, lineolate reticulations on the vertex behind ocelli and on the upper part of occiput; propleura with coarser punctures; punctations at apex of scutellum beyond the transverse carina fully twice as coarse as on the basal part; propodeum with three short carinae separating the four basal foveae, the middle carina being continuous with some irregular and somewhat anastomosing rugae extending to apex of the propodeum; coxae, especially on the dorsal surface of the hind pair, very finely and delicately reticulate; abdomen smooth and polished. Pubescence of head and thorax fine, soft and pale yellowish, not especially abundant and quite inconspicuous; abdomen nearly bare except on the seventh tergite, which has numerous pale yellowish hairs similar to those of the thorax, but somewhat longer.

Head and thorax bright metallic green, the face and collar of pronotum with reddish and golden reflections, the other parts with a more or less golden luster; latero-basal corner of propodeum and contiguous margin of the mesopleura bright rosy purple; petiole metallic green; the gaster of abdomen yellowish-brown with a metallic greenish luster above at the base of the first tergite and on the sides near base of the fifth and sixth tergites; fourth tergite at base laterally, fifth tergite entirely, and the sixth, except basally above, darker brown or fuscous, seventh tergite purer yellow; ovipositor sheaths blackish, the spicula dark brown. Scape yellow, pedicel dark brown, flagellum blackish; legs, including coxae, brownish-yellow, the claws blackish; wings faintly smoky or almost hyaline, the veins fuscous.

Length of body to apex of ovipositor sheaths, 3.90; length of head, 0.646; width of head, 0.886; least width of frontovertex, 0.499; length of antenna, 1.15; width of mesoscutum, 0.763; length of fore wing, 2.48; width of fore wing, 0.940 mm.

Male. Very similar to the female in coloration and sculpture. Antennae similar, but slightly shorter and more clavate, the first funicle joint slightly longer than wide, the second as wide as long, and the four following joints a little wider than long. Petiole of abdomen about four times as long as wide, smoothish dorsally, and with fine thimble-like punctures on the sides; gaster small, narrowly oval, depressed, widest at the apical third and narrowing basad toward the petiole, and with the first tergite nearly as long as the following combined. Head, thorax, petiole, antennae, legs, and wings colored as in the female; basal segment of gaster brownish-yellow with a brilliant green, quadrate spot covering basal half of the tergum, the following yellow portion of dorsal aspect of first tergite about one-half wider than long; next three segments of gaster

dark purple, the remaining apical segments purple, but with a greenish and golden luster.

Length of body, 2.08; length of head, 0.539; width of head, 0.735; width of frontovertex, 0.436; length of antenna, 1.00; width of mesoscutum, 0.622; length of fore wing, 1.91; width of fore wing, 0.799 mm.

Described from one female (holotype) collected at Nunanu Pali, Oahu, in 1904 (Dr. Perkins), and one male (allotype) collected on the Palolo Hill trail, Oahu, April 9, 1916 (Timberlake).

**Stictolelaps haleakalae** (Ashmead).

*Stictomischus haleakalae* Ashmead, 1901, Fauna Hawaiensis, Vol. 1, p. 311, male.

This species is known to me only from the description, but it seems to be closely allied to the following species and easily distinguished therefrom by the largely aeneous-black legs.

**Stictolelaps stigmatus** n. sp. Figure 8.

Antennae inserted a little above the ocular line, rather elongate, not clavate; scape reaching to the plane of frontovertex; pedicel about twice as long as thick at apex; funicle joints all much longer than wide, decreasing gradually in length distad, the first about three times as long as thick and tapering toward the base, the sixth nearly twice as long as thick; club three-jointed and about as long as the two preceding joints combined. Mandibles quadridentate. Petiole of abdomen about thrice as long as wide and narrowest at base; gaster obovate, depressed and, together with the petiole, about four-fifths as long as the thorax; first tergite of the gaster covering about one-half of the surface, the following tergites about equal.

Head finely reticulate, but the vertex behind ocelli and upper part of occiput with fine, transverse wrinkles or rugae; collar of pronotum and the mesoscutum rather deeply and finely, reticulately punctured, with the separating lines mostly transverse; puncturation of scutellum more thimble-like, the apex of scutellum behind the transverse carina more coarsely reticulate, the lateral areas just behind the axillae smoothish, but with longitudinal rugulae; axillae finely reticulate; metanotum smooth and polished; propodeum within the lateral carinae finely and subrugosely sculptured and with an irregular median carina; meso and metapleura with fine thimble-like puncturation; propleura and prepectal plates coarsely reticulate; mesosternum reticulately punctured, and the coxae finely reticulate; petiole of abdomen with very shallow punctures or nearly smooth, the gaster smooth and polished. Pubescence blackish and rather abundant on the thorax, although not prominent; sides of propodeum nearly bare.

Upper part of head and most of occiput black, with a slight purplish luster on the frontovertex; face and cheeks bright metallic green; thorax

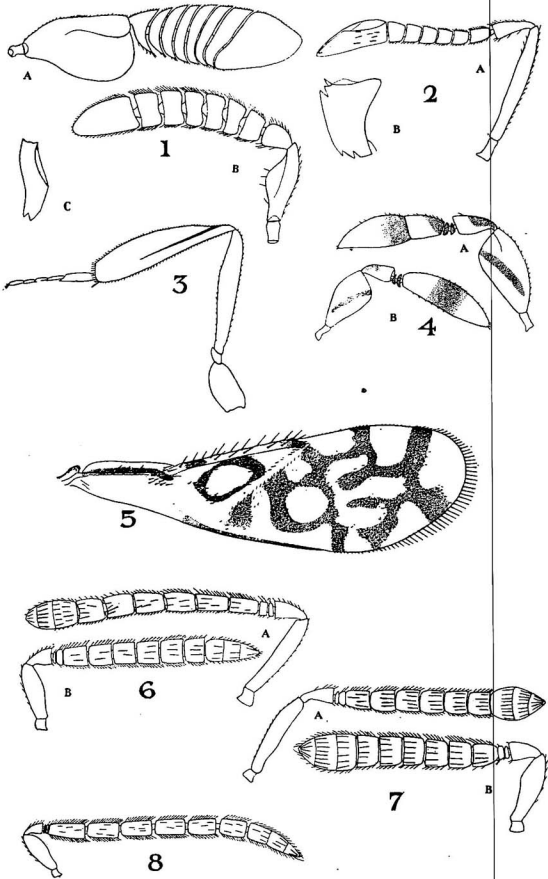
rather dark metallic green, but brighter on the pleura and propodeum, the mesoscutum and scutellum bluish-green, and the dorsal part of pronotum, except the posterior margin of the collar, purplish-black; metanotum with a brilliant golden and brassy luster; petiole of abdomen metallic green, the first tergite of gaster brownish-yellow with a small, bright blue-green spot at base close to apex of petiole, this spot being about one-fourth as long as the tergite; following tergites shining purplish-black, the venter shining yellowish and somewhat metallic; scape yellow, pedicel and flagellum black, the flagellum densely covered with semi-erect, short, brownish hair; coxae metallic green, the remainder of legs brownish-yellow, with the middle tarsi and claws of the other legs fuscous; wings faintly fuliginous, the cloud being a little darker in the area surrounding the stigmal vein; veins fuscous.

Length of body, 2.51; length of head, 0.577; width of head, 0.742; least width of frontovertex, 0.455; length of antenna, 1.46; width of mesoscutum, 0.622; length of fore wing, 2.16; width of fore wing, 0.898 mm.

Described from one male (holotype), Niu ridge, Oahu, February 10, 1918 (Timberlake).

EXPLANATION OF FIGURES PLATE IX.

- Fig. 1. *Zaplatycerus fullawayi*.  
A. Antenna of female. B. Antenna of male. C. Mandible of female in frontal view.
- Fig. 2. *Chrysopophilus compressiventris*.  
A. Antenna of female. B. Mandible in frontal view.
- Fig. 3. *Chrysopophilus compressiventris*.  
Hind leg of female.
- Fig. 4. *Marietta graminicola*.  
A. Antenna of female. B. Antenna of male.
- Fig. 5. *Marietta graminicola*.  
Fore wing of female.
- Fig. 6. *Calolelaps basalis*.  
A. Antenna of female. B. Antenna of male.
- Fig. 7. *Stictolelaps flaviventris*.  
A. Antenna of female. B. Antenna of male.
- Fig. 8. *Stictolelaps stigmatus*.  
Antenna of male.



Central American and Hawaiian Chalcidoidea